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PROFESSIONAL MILITARY COMPTROLLER COURSE

# STUDENT REPORT

Title

THE IMPORTANCE OF A SYSTEMATIC APPROACH TO DECISION MAKING

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By

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## SUMMARY

In view of the DOD austerity program, we must maximize our productive time and make correct management decisions.

We attend many project decision meetings where the chairperson allows the attendees to dwell on irrelevant points. Sometimes potential decisions are considered which are not related to the goals and objectives of the project.

This paper discusses a long-accepted seven step process for decision making used in the economic analysis arena. It recommends applying this procedure to "ordinary" decision making.

Once the discussion of the decision-making process concludes, the paper addresses several ways to properly implement the decision and perform follow-up analysis and program evaluation.

The final recommendation is that every management-related course in DOD should emphasize the seven step decision making process. If we hear it enough, it will become second nature to managers. This is a timely recommendation because we will no longer have the flexibility to spend time fumbling for decisions and trying to implement poorly prepared solutions. The process should become a significant yet unconscious routine for managers.

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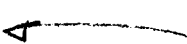
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## INTRODUCTION

### I. THE NECESSITY FOR ORDERLY ANALYSIS

Decision making must take place as an integrated and sequential process. In reality, we attend meeting after meeting where the sequence of steps are muddled or one step is dwelled upon too long or sometimes the process has even been totally ignored. The benefits from adopting a process-oriented approach to a decision are considerable. Its regular use should become second-nature to everyone in the organization; but, it is absolutely essential that successful managers should be purposeful and rational in their decision making. The more systematically a manager can go about it, the more likely he or she is to capitalize on experience and the facts available and make a correct decision. In these austere times, we will no longer have the luxury of wasting time discussing vague alternatives which do not meet the objectives. (SDW) 

The purpose of this paper is to familiarize managers with good decision-making practices. Decision analysis includes seven steps: (1) Establish and define the desired goal or objectives; (2) Formulate assumptions and identify constraints; (3) Identify all alternatives for satisfying the objectives; (4) Determine the inputs and outputs of each feasible alternative; (5) Compare the costs and benefits of alternatives and rank them; (6) Evaluate and determine the risks and uncertainties; and, (7) Prepare conclusions and recommendations.<sup>1</sup>

As these steps are considered sequentially, the first three steps are highly interactive and require many discussions among the study group and management. Once these three steps are completed, the analysis can proceed. Generally, there is little interaction needed with management during steps four and five. However in steps six and seven, when the results are finally consolidated, a conclusive review among the players must occur. The pluses and minuses of each alternative should be thoroughly examined with the concurrence of all the relevant stakeholders in the decision.<sup>2</sup>

The size of the proposed investment, the magnitude of the proposal and the visibility of the project should determine the size and complexity of the analysis. If all of the seven steps have been appropriately and adequately covered, the logic behind the decision is defined and recorded for review and the presentation of the results is simplified through a total document.

This paper will be limited to discussing decisions of basically nonroutine and nonrecurring choices with moderate amounts of uncertainty. (If a problem tends to recur often, a policy or procedure will probably be established to handle recurring decisions). We are ready for instruction in decision making.

## DISCUSSION

### II. THE SEVEN STEP PROCESS

Now we will take a separate look at each of the seven steps of decision making and discover the importance of the sequential procedure.

### STEP 1. IDENTIFY THE GOALS AND OBJECTIVES

Without question, defining the objective is critical and must be specific if the analysis is to be successful. The setting of objectives must underlie all decision making. "If you do not know where you need to go, any old road will do."<sup>3</sup> Do we want quick payback? Do we need to manufacture to mobilization rates or will peacetime rates be adequate? What problem are we correcting? The objective statement needs to include the criteria by which the alternatives will be measured. The objective statement must also reflect an unbiased point of view so that it does not suggest only one alternative. Your own personal objectives of becoming a GS-14 by age 30 may have to be risked in favor of looking at all of the objectives. And, depending on the magnitude of the project, you may have to arrange the objectives in a hierarchial manner because the budget may turn out to be one of the "constraints" in the next step of the process.

### STEP 2. FORMULATE ASSUMPTIONS AND IDENTIFY CONSTRAINTS

All decision makers are faced with certain constraints within which they are allowed to operate. There may be constraining OSHA or EPA policies or specific budgetary or funding considerations. These external constraints are normally beyond the control of the analyst and provide boundary limitations within which the rest of the analysis will be conducted.

An assumption is a judgment of limitations given to the study by those involved.<sup>4</sup> Since it relates to a future occurrence there will be risk and uncertainty about the assumption and this

should be looked at when the conclusion and recommendations are made. Also, the analyst should not be lazy and make assumptions when a study of the subject matter could provide hard data. Although formulating assumptions and constraints is given as step two in the analytical process, there will probably be smaller assumptions and constraints inherent within each phase as you move through the decision process.

### STEP 3. IDENTIFY ALL ALTERNATIVES

Once the objectives have been defined and the assumptions and constraints identified, alternatives for accomplishing the agreed-upon objectives can be developed.

The range of alternatives must be reasonable and viable. The list of alternatives compiled in the beginning of the study will probably be reduced. If alternatives are mentally or verbally analyzed and then dismissed with no further analysis, this should be noted including the reasons for elimination.

The status quo should be thoroughly examined to ensure that it no longer meets the objectives and to confirm that there really is a need to take action and do something differently.<sup>5</sup>

Depending on the source or the visibility of the proposed project, you may need to be more sophisticated or systematic in choosing alternatives. You may want to use decision matrixes or decision trees and influence diagrams. Sometimes a manager may want to go back to the objectives and assign weighted importance to each point.

Occasionally a project will be so technically complex that only the engineers will understand the options available.

Managers will have to know whom to trust in a situation like this. On a really new concept, the manager will hopefully know almost as much as his engineer.

Finding alternatives is not a hit-or-miss affair, but a patient search for a specific course of action which will meet the objectives. Remember that steps one through three are interactive. You (the analyst) should work with management and get their blessing before proceeding.

#### STEP 4 DETERMINE THE INPUTS AND BENEFITS OF EACH FEASIBLE ALTERNATIVE

In this step, you can begin to work alone to determine how each alternative looks. Getting relevant information from the right people becomes important. Knowing when we know enough is crucial. We should not fall into the syndrome for "one more study." Military history is filled with descriptions of battles lost by generals who needed "one more study".<sup>6</sup>

The more prevalent situation is where people collect too little information and make a rash decision. Ironically, it seems that the more important the situation, the more likely we are to commit this error. When it comes to strategic situations, top managers and generals think that they know the situation better than anyone and fail to gather any information which may be contrary. Therefore, the most technically knowledgeable people never get to speak on the subject. Textbooks agree that the Bay of Pigs fiasco is the epitome of the single-minded choice of an alternative. No one in the Oval Office wanted to hear anything contrary to the chosen alternative.<sup>7</sup>

In step four, the analyst must determine what resources will be

required for each alternative. Regardless of the method used to estimate costs or quantify benefits/outputs, the analyst must remember that the next step is to analyze all of the available information and to manipulate it into a meaningful format which shows unbiased analysis.

STEP 5 COMPARE THE INPUTS AND OUTPUTS OF ALL FEASIBLE ALTERNATIVES

In this step, the alternatives in the analysis are compared in terms of inputs (resources) and outputs (benefits) of each. This comparison should be arranged to highlight the issues associated with each alternative and to assist in the selection of a preferred way to accomplish the established objectives. As this step is performed, it is of no value unless the first four steps in the decision-making process have been done with care. Realistically, there are only three relationships that can exist among competing alternatives relative to inputs and outputs:

UNEQUAL INPUTS/EQUAL EFFECTIVENESS

EQUAL INPUTS/UNEQUAL EFFECTIVENESS

UNEQUAL INPUTS/UNEQUAL EFFECTIVENESS<sup>8</sup>

In the case of unequal inputs/equal effectiveness, the preferred alternative is simply the least costly or the one with the fewer inputs.

In the case of equal inputs/unequal effectiveness, the preferred alternative will be the one that best meets the needs of the objectives of the project.

The most common and most difficult relationship to evaluate is the unequal inputs/unequal benefits. Incremental analysis can be useful in showing the extent to which levels of effectiveness change

for the associated increase in resources for the alternatives. However, incremental analysis does not provide an awareness of the total cost and benefits of a particular course of action. It should not be used as the sole comparative technique.

There are many cost comparison techniques where costs and the time value of money are important and there are many ways of comparing benefits (outputs) both quantifiable and nonquantifiable. It is up to the managers to use what best meets their needs for presenting their conclusions and recommendations which will occur in step seven.

#### STEP 6 EVALUATE RISKS AND UNCERTAINTIES

The business arena is full of uncertainties. What new regulations will the government issue? How will Gramm-Rudman cut our budgets? What if the predicted workload in our study does not materialize? What would be the breakeven point where the project would no longer pay for itself? Ignoring uncertainties can lead to great risks in the chosen alternative. With many decisions, there will be uncertainties about exactly how well an alternative will meet the objectives or more importantly, were the assumptions really supportable. For most situations, it will be sufficient to consider alternatives qualitatively. In other cases, very formal methods may be used and documented such as Monte Carlo simulations. While you are analyzing uncertainties, you need to consider if additional information would reduce the uncertainty. This could lead to more incremental analysis as to the "value of additional information".<sup>9</sup>

Having a good crystal ball to anticipate the questions which top management may want to surface when you are presenting the analysis might be a way to cover uncertainty.

Try to get a feel for who will be in your audience and go through the project critiquing and role playing as if you were the "big general" who wants to shoot you down and distribute the scarce resources to a more worthy candidate.

#### STEP 7 PREPARE CONCLUSIONS AND MAKE RECOMMENDATIONS

If you have followed the preceding steps, you will have a firm basis for making your decision. In some cases, the preferable decision will be clear. However, before you recommend the decision, it is a good idea to go over everything. If all of the alternatives look fairly even, it actually may not matter which you choose. But remember, if none of them really meets the objectives, you should start back to step three and get another set of alternatives. Above all, never lose sight of the objectives.

#### III. PRESENTING THE PROJECT CONCLUSIONS

Decision making in an organization can be methodically taught, as I have just described above. On the other hand, the correct time for execution of a decision is often judgmental; and, all of your excellent work can suddenly disappear down a deep black hole if it is brought to top management at the wrong time.

For a really large project, there seems to be a most opportune time to go forward and present to the funding people why your project is the best. While an innate sense for the correct timing cannot be methodically taught, we know that hurried decisions can leave you open to unanswerable questions and your



study will be open to ridicule. These decisions are difficult and many of us do not handle them well; but, if all of the seven steps of the analysis are complete, a presenter can be ready and confident when the presentation time comes. There is no substitute for technical knowledge of the recommended course of action and magically confidence accompanies preparedness.

You cannot be expected to be an expert on all topics of the analysis. Therefore, you should assemble a technical group to back you up. Do not hesitate to call on them. During step six, Risk Analysis, you should call on the "professional pessimist" or "nit picker" in your group to help find if there are holes in your proposed decision.

In the successful presentations which I have observed, military presenters seem to invite less ridicule and skepticism for a new product or procedure. They probably are not better prepared but they appear more authoritative. But whether civilian or military, good technical knowledge plus the confidence that through the seven step process, you have studied all of the viable alternatives and have chosen the best one will give you the assurance for a successful presentation and recommendation.

#### IV. IMPLEMENTING THE DECISION

Assuming that your decision is acceptable, it must be effectively and efficiently implemented so that the problem will be solved.

Once you have become confident that you have chosen the best way to achieve the objectives, you do not simply give the necessary orders and then move on. Before you put your plan into

effect, you should recognize that other difficulties will occur if you do not carefully plan for implementing the decision.

Preparing the organization and the effected groups or individuals through enlistment of personal commitments increases the chances for successful implementation.

Good communication at the proper time is one of the most effective ways to assure the success of a major decision. "The degree of understanding shown by those who are required to carry out the decision is commensurate with open communications and the participation of the individuals in the decision-making process".<sup>10</sup> especially during steps one through three and steps six and seven.

To further assure this implementation, the project manager should consider some or all of the following five steps:

1. Set up controls and reporting procedures so that it can be controlled against schedule. There are many good software systems for project control.

2. Follow up on orders to know that they have been received and understood.

3. Set up specific reporting dates (weekly if possible).

4. Establish a warning system that will show trouble as early as possible.

5. Never leave a progress meeting without specific assignments for the next meeting.<sup>11</sup>

Corrective actions and modifications may be required any time during implementation. Occasionally the project manager may have to lower aspirations to accept an attainable result. Sometimes

the manager may get a result higher than hoped for and can pursue an enhanced objective.<sup>12</sup>

#### V. POST ANALYSIS

If the implementation of the decision starts out extremely successfully, everyone suddenly wants some of the glory for the project, and it will be written into the performance standards of top and middle management. But a project may start out really well and then start to "go bad". At this point, it is already written into so many job standards that middle managers may begin to panic and start reporting false accomplishments (lies) to the top. If the "bad" situation continues, middle managers may start to manipulate funds in order to throw more and more money at the project in hopes of improving performance. Once in a while, this succeeds. But eventually, the truth surfaces.

It is at this point that an unbiased technique called "Program Evaluation" should be made by an outside group. According to AR 11-28, program evaluation is the analysis of ongoing actions to compare actual performance with the approved project to see if it can be improved (or abolished).

When a program evaluation is called for, managers tend to become very defensive because the aura and power of politics has often overtaken logic and careers may be at stake.

I repeat that "ideally" a program evaluation should be performed by an unbiased group like internal review and the program stopped if required.

If the original problem still exists and has not, for example, been overtaken by new technology, the program evaluation

can be used as a lessons-learned and the group can go back to step one of the decision-making process to find a new solution taking into account what did not work the first time.

## VI. CONCLUSION AND RECOMMENDATIONS

Decision theory is still a relatively unexplored subject. Today the tendency is to reduce everything to a mathematical formula so that a computer can coldly give a decision. I believe that managers must actively participate in decisions. There cannot be a formula for implementing decisions, therefore management should participate from the beginning. I do not believe that decision making needs to be made terribly complex with math and statistics. It is accomplished through the logical seven step process which can incorporate as much math as necessary, but the process should not be marked with unnecessary complications. If I would write a book on this subject, I believe that I would do so by presenting the seven step process in part one with a series of decision-making cases much like a law book in part two.

My recommendation is that every management-related course in DOD should emphasize the seven step decision making process. If we hear it enough, it will become second nature to managers so that it will become a significant yet unconscious routine.

So much of decision making is uncertain because it deals with future events. If a manager can reduce uncertainty by only a little by following a systematic approach, he or she can be confident that the decision dictates the course of action.

#### FOOTNOTES

1. AMC Pamphlet 11-28, Economic Analysis Concepts and Methodologies, HQ AMC, July 1985, 2-2.
2. Ibid., 2-3.
3. R.V. Brown and J. W. Ulvila, "Decision Analysis Comes of Age," Harvard Business Review, (September-October 1982), 130-141.
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